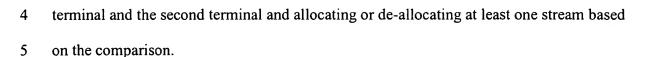CLAIMS
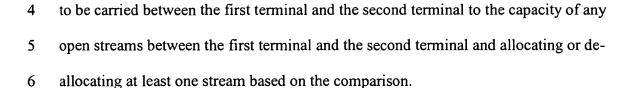
What is claimed is:

1   1.   A method for allocating multiple communications streams of a wireless

2   communications system comprising:

3   identifying a first terminal and a second terminal to each other for the

4   communication of traffic over at least one of multiple streams; and

5   dynamically allocating and de-allocating further streams based on the

6   traffic to be carried and the traffic capacity of opened streams between the first and the

7   second terminals.

1   2.   The method of Claim 1, further comprising opening a stream for

2   communications between the first terminal and the second terminal before dynamically

3   allocating and de-allocating.

1   3.   The method of Claim 1, wherein dynamically allocating and de-allocating

2   comprises comparing traffic to be carried between the first terminal and the second

3   terminal to the capacity of any open streams between the first terminal and the second

4   terminal and allocating or de-allocating at least one stream based on the comparison.

1   4.   The method of Claim 1, wherein dynamically allocating and de-allocating

2   comprises comparing depths of transmit queues to the capacity of any open streams

3   between the first terminal and the second terminal and allocating or de-allocating at least

4   one stream based on the comparison.

1   5.   The method of Claim 1, wherein dynamically allocating and de-allocating

2   comprises receiving messages from higher layers regarding traffic demands and

3   comparing the traffic demands to the capacity of any open streams between the first

4   terminal and the second terminal and allocating or de-allocating at least one stream based

5   on the comparison.

1   6.   The method of Claim 1, further comprising distributing upstream packets

2   between all allocated streams for transmission to the second terminal and recombining

3   transmitted data received from the second terminal into packets at the first terminal.

1   7.   The method of Claim 1, wherein identifying a first terminal and a second

2   terminal to each other comprises registering a first terminal and a second terminal with

3   each other for opening and closing multiple streams.

1   8.   A machine-readable medium having stored thereon data representing

2   sequences of instructions which, when executed by a machine, cause the machine to

3   perform operations comprising:

4   identifying a first terminal and a second terminal of a wireless

5   communications system to each other for the communication of traffic over at least one

6   of multiple streams; and

7   dynamically allocating and de-allocating further streams based on the

8   traffic to be carried and the traffic capacity of opened streams between the first and the

9   second terminals.

1   9.   The medium of Claim 8, further comprising instructions which, when

2   executed by the machine, cause the machine to perform further operations comprising

3   opening a stream for communications between the first terminal and the second terminal

4   before dynamically allocating and de-allocating.

1   10.   The medium of Claim 8, wherein the instructions for dynamically

2   allocating and de-allocating further comprise instructions which, when executed by the

3   machine, cause the machine to perform further operations comprising comparing traffic

4　to be carried between the first terminal and the second terminal to the capacity of any

5　open streams between the first terminal and the second terminal and allocating or de-

6　allocating at least one stream based on the comparison.

1　　　11.　　The method of Claim 8, wherein dynamically allocating and de-allocating

2　comprises comparing depths of transmit queues to the capacity of any open streams

3　between the first terminal and the second terminal and allocating or de-allocating at least

4　one stream based on the comparison.

1　　　12.　　A first terminal of a wireless communications system comprising:

2　　　　　　a registration algorithm to identify the first terminal and a second terminal

3　to each other for the communication of traffic over at least one of multiple

4　communication streams of the communications system;

5　　　　　　a channel allocation algorithm to dynamically allocate and de-allocate

6　further streams based on the traffic to be carried and the traffic capacity of opened

7　streams between the first and the second terminals; and

8　　　　　　a data distribution algorithm to distribute upstream packets between all

9　allocated streams for transmission to the second terminal and recombining transmitted

10　data received from the second terminal into packets at the first terminal.

1　　　13.　　The apparatus of Claim 12, wherein the channel allocation algorithm

2　compares traffic to be carried between the first terminal and the second terminal to the

3　capacity of any open streams between the first terminal and the second terminal and

4　allocates or de-allocates at least one stream based on the comparison.

1　　　14.　　The apparatus of Claim 12, wherein the channel allocation algorithm

2　compares depths of transmit queues to the capacity of any open streams between the first

3   terminal and the second terminal and allocates or de-allocates at least one stream based
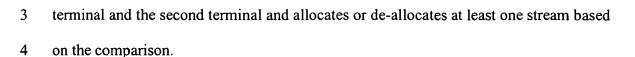
4   on the comparison.

1   15.   The apparatus of Claim 12, wherein the channel allocation algorithm

2   receives messages from higher layers regarding traffic demands and compares the traffic

3   demands to the capacity of any open streams between the first terminal and the second

4   terminal and allocates or de-allocates at least one stream based on the comparison.

1   16.   A method for allocating multiple communication streams of a wireless

2   communications system comprising:

3   comparing traffic to be carried between a first terminal and a second

4   terminal to the capacity of the multiple streams;

5   allocating at least one stream based on the comparison for

6   communications between the first terminal and the second terminal based on the

7   comparison;

8   further comparing traffic to be carried between the first terminal and the

9   second terminal after allocating the at least one stream; and

10   allocating or de-allocating at least one stream based on the further

11   comparison.

1   17.   The method of Claim 16, wherein allocating or de-allocating at least one

2   stream comprises allocating at least one further stream.

1   18.   The method of Claim 16, wherein allocating or de-allocating at least one

2   stream comprises de-allocating the at least one allocated stream.

1   19.   The method of Claim 16, further comprising allocating a stream for

2   communication of traffic between the first terminal and the second terminal before
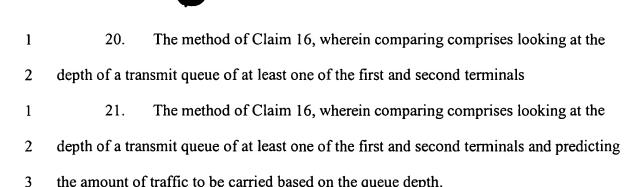
3   comparing traffic to be carried.

1   20.   The method of Claim 16, wherein comparing comprises looking at the

2   depth of a transmit queue of at least one of the first and second terminals

1   21.   The method of Claim 16, wherein comparing comprises looking at the

2   depth of a transmit queue of at least one of the first and second terminals and predicting

3   the amount of traffic to be carried based on the queue depth.

1   22.   The method of Claim 16, wherein comparing comprises looking at the

2   depth of a transmit queue of at least one of the first and second terminals and comparing

3   the queue depth to a threshold queue depth.

1   23.   The method of Claim 16, wherein comparing comprises receiving a

2   transmit queue depth report at the first terminal from the second terminal and comparing

3   the queue depth to the traffic capacity of open streams between the first terminal and the

4   second terminal.

1   24.   The method of Claim 16, wherein looking at the depth of a transmit queue

2   comprises taking an average of the queue depth at different times and looking at the

3   average queue depth.

1   25.   The method of Claim 16, further comprising dynamically allocating and

2   de-allocating streams based on the traffic to be carried and the traffic capacity of opened

3   streams between the first and the second terminals.

1   26.   A method for allocating multiple communications streams of a wireless

2   communications system comprising:

3   opening a first wireless communications stream between a first terminal

4   and a second terminal for the communication of traffic;

5   transmitting a transmit queue depth report from the first terminal to the

6   second terminal;

7   receiving an assignment of a further stream for communications between

8   the first and the second terminal based on the queue depth report;

9   transmitting further queue depth reports from the first terminal to the

10   second terminal; and

11   receiving stream allocations and de-allocations based on the further queue

12   depth reports.

1   27.   The method of Claim 26, wherein the queue depth report comprises an

2   average of the depth of a transmit queue of the first terminal at different times.

1   28.   The method of Claim 26, further comprising registering the first terminal

2   and the second terminal with each other for the communication of traffic over at least one

3   of multiple streams before opening a first stream.